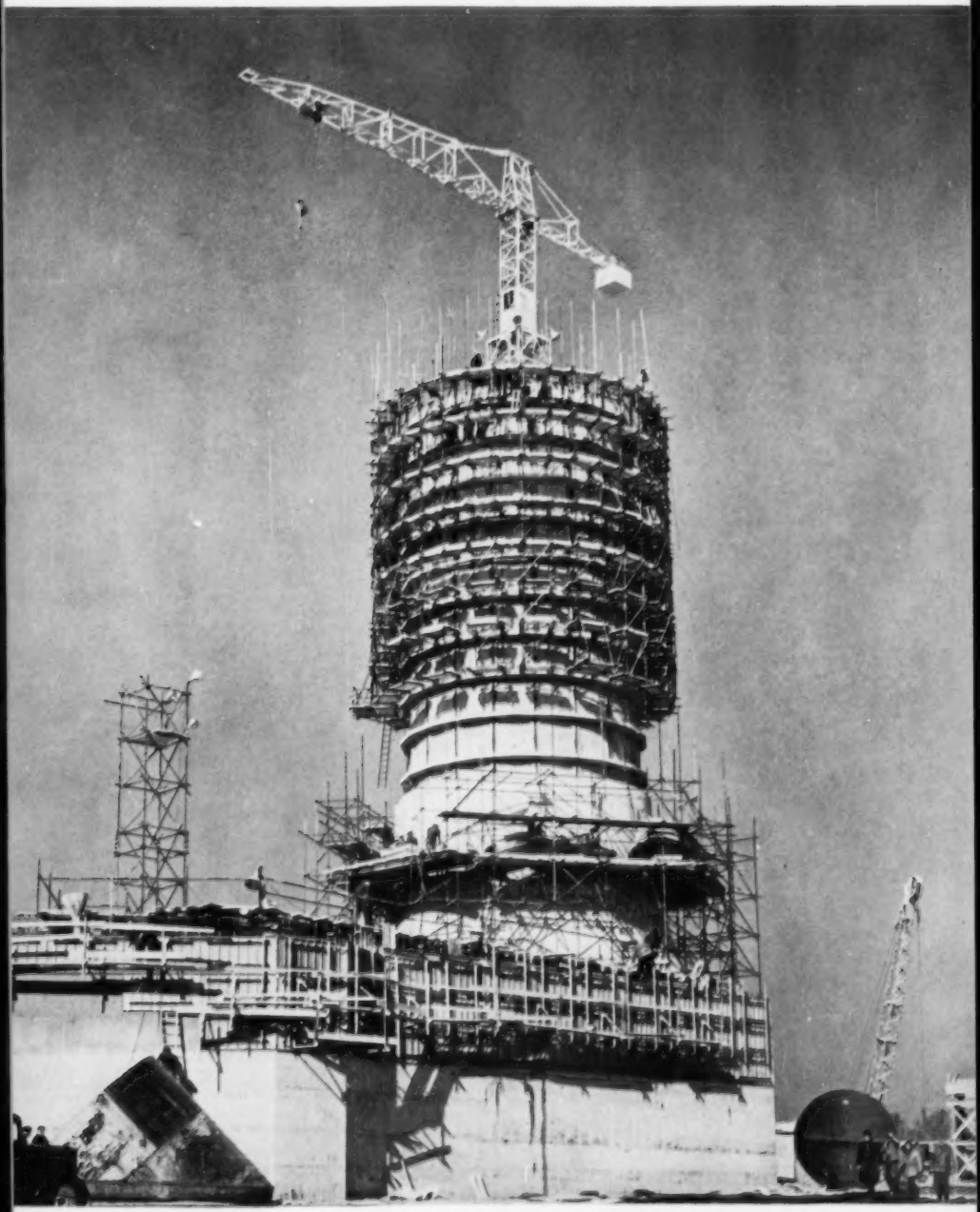
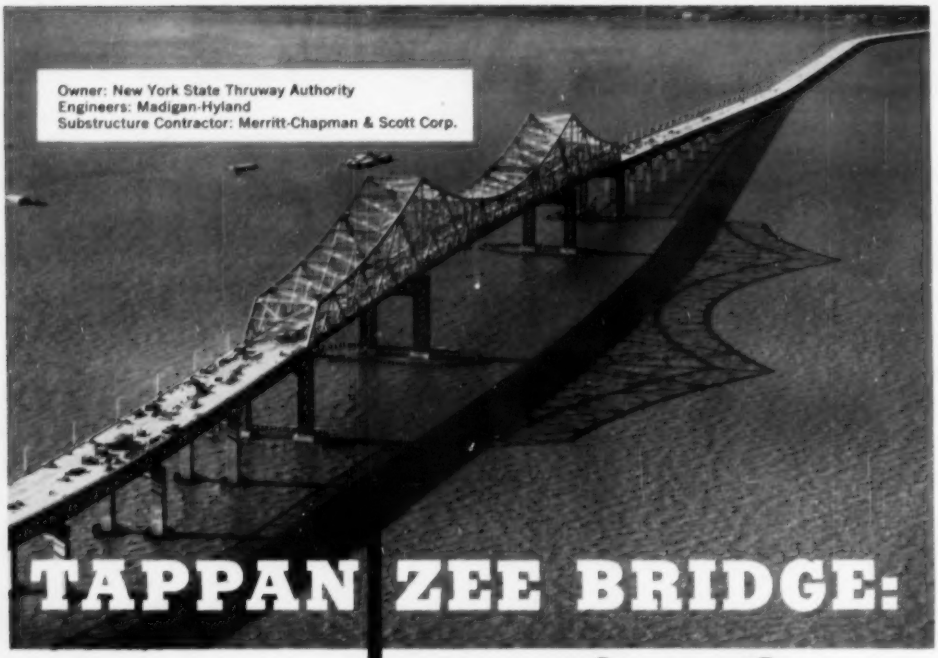
ACI News Letter

Vol. 28, No. 11 JOURNAL of the AMERICAN CONCRETE INSTITUTE May 1957



Prestressed atomic exhaust stack . . . p. 6



Owner: New York State Thruway Authority
Engineers: Madigan-Hyland
Substructure Contractor: Merritt-Chapman & Scott Corp.

TAPPAN ZEE BRIDGE:

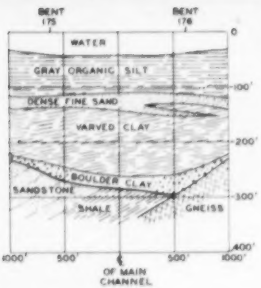
you can't see the toughest problem

Placing the foundations for the center cantilever span of the $60-million Tappan Zee Bridge was a major construction triumph! Featuring buoyant concrete caissons, this famous structure carries the New York Thruway 2.8 miles across the Hudson River from Nyack to Tarrytown.

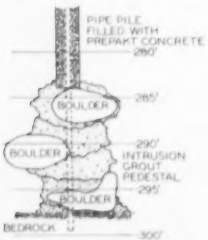
Substructure design called for 30-inch pipe piles to take part of the dead load and all of the live load, but unusual subsoil conditions (diagram) caused unprecedented problems. Boulders and weak bedrock prevented firm pile bearing; 260 to 300-foot piles made tremie concreting impractical. When these conditions were encountered, INTRUSION-PREPAKT was called in.

After airlift mucking, all 146 piles were filled with PREPAKT concrete made by consolidating preplaced aggregate with INTRUSION grout. This was followed by drilling, washing and INTRUSION grouting the area below the piles to provide necessary point-bearing for the piles. This consolidated the seamy gneiss and decomposed sandstone producing a direct, strong connection to bedrock for piles stopped by boulders.

Modern I-P techniques thus were vital to the success and economy of the unique Tappan Zee foundations. When you encounter difficult foundation problems, contact: INTRUSION PREPAKT, INC., Room 568-F, Union Commerce Bldg., Cleveland 14, Ohio. In Canada: INTRUSION-PREPAKT, LTD., 159 Bay St., Toronto, Ontario.



Subsoil profile at Tappan Zee site.



Pedestal build-up with INTRUSION grout supports piles halted above bedrock by boulders. Piles were filled with PREPAKT concrete when great length made other methods impractical.

INTRUSION-PREPAKT, INC.

OFFICES IN PRINCIPAL U.S. AND FOREIGN CITIES

Intrusion and Prepakt are trade marks of Intrusion-Prepakt, Inc., whose methods and materials are covered by U. S. Patents Nos. 2312110, 2655003, 2734302 and others; also patents pending.

ACI

News Letter Contents

May 1957

On the Cover—Exhaust stack for the atomic center at Marcoule, France, designed in prestressed concrete by E. Freyssinet. View during construction shows tower crane used for erection of construction scaffolding and precast panels. Story on p. 6 of the News Letter.—*Photograph by H. Baranger, Paris*

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ACI authorizes

Regional Organization

Southern California group announced

Acting on the recommendation of ACI Committee on Regional Organization, the Board of Direction has authorized trial establishment of a Southern California Chapter of ACI. Objectives of the local chapter, all within the limits of the ACI Charter, will be as follows:

1. To work for active and continuous local interest and participation in Institute affairs, aiming simultaneously toward augmented membership and organized member effort.

2. To plan and conduct discussion meetings and group conferences for solving technical problems. Ideas and information on such problems and solutions may be passed on to appropriate national committees to expedite needed action on corrective measures or new methods.

3. To organize and carry on advisory work with other agencies and groups for correlation of code requirements, harmonizing of building regulations, explanation of and use of ACI Building Code and standards of practice, with the object of improvement of design and construction.

4. To follow and assist in the sound development of new methods and techniques, informing the Institute of all significant developments and of local sources of information and of material for articles and papers to disseminate such information. Such activity aims at improvement in practice and effort in the field of engineering education.

5. To encourage selected research projects and scientific investigations to develop test data and techniques useful to the designers and builders of concrete construction, producers of concrete materials and products, and to the public.

6. To aid in expediting information service to the membership, by suggesting sources of information on specific problems.

Continued on p. 32

ACI

EXCAVATION FOR ACI HEADQUARTERS building in Detroit nears completion as the fund raising drive enters its final phases. Work has been completed on footings for the unique concrete and glass structure designed by Yamasaki, Leinweber, and Associates.

Individual members of the Institute have already been invited to make contributions to the building fund which now totals nearly 75 percent of the planned $250,000 goal. Early contributions to the fund have come largely from business enterprises as shown in the accompanying tabulation. Henry L. Kennedy, Dewey and Almy Chemical Co., Cambridge, Mass., heads the building fund committee.

Advance orders, Bound Volume 54

A 20 percent discount on the purchase price of $6 for bound copies of the forthcoming Proceedings V. 54 will be available until June 1, 1957.

Checks or money orders should be sent to the Institute office prior to that date to take advantage of the discount. The new volume will begin with the July, 1957, issue, continue through the June, 1958, issue, and be completed with the December, 1958, Part 2 issue.

Contributions by Category

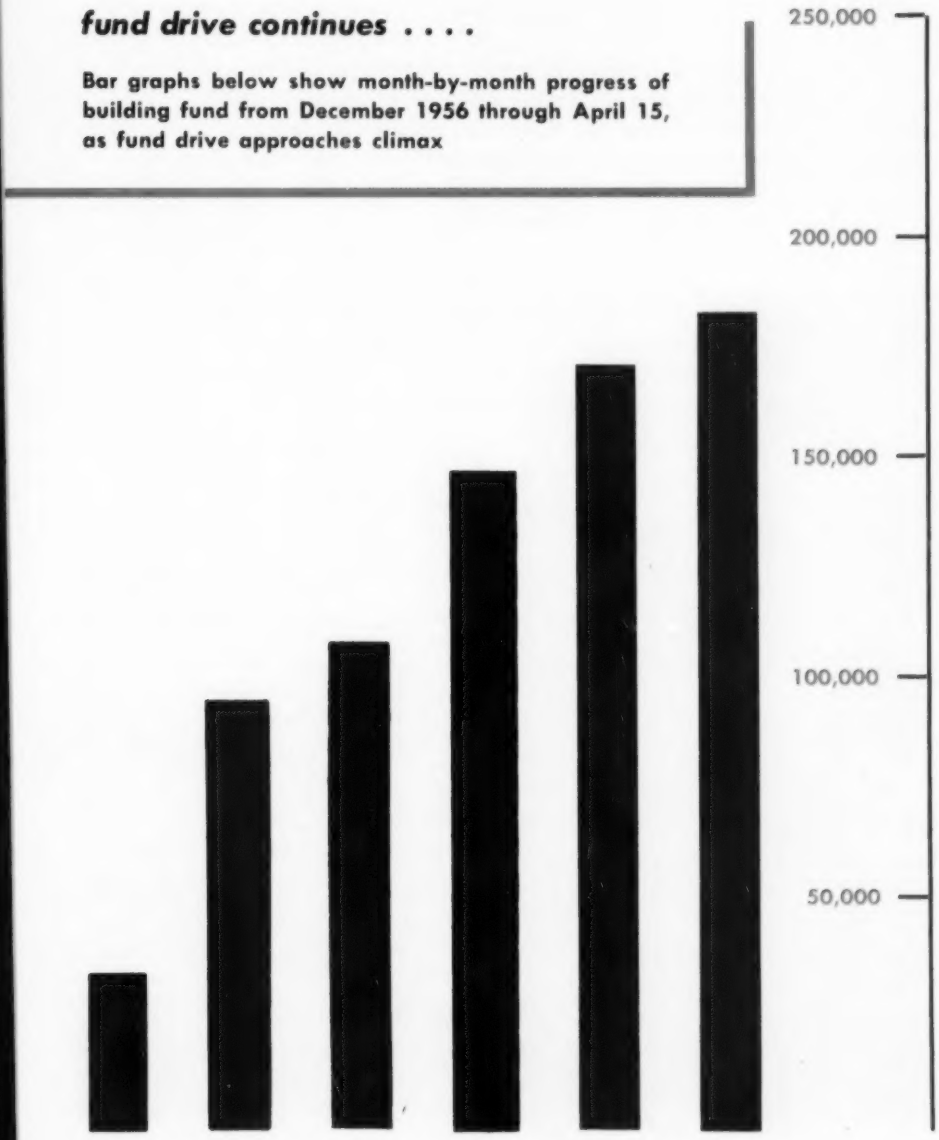
to April 15, 1957

Cement producers	$ 52,362.00
Reinforcing steel industry	40,000.00
Engineers and architects in private practice	33,206.59
Contractors	16,315.00
Ready-mixed concrete and aggregate industry	9,433.87
Admixtures manufacturers	6,158.93
Concrete products manufacturers	2,270.00
Concrete machinery and specialty products	1,735.00
Special Contributions	1,209.08
Eastern Canada	945.42
Membership at large	610.00
Total	$164,295.89
Pledges in hand	20,995.00
GRAND TOTAL	$185,290.89

breaks ground as

fund drive continues . . . .

Bar graphs below show month-by-month progress of building fund from December 1956 through April 15, as fund drive approaches climax



Prestressed concrete exhaust stack, atomic center at Marcoule*

AMONG THE MULTITUDE of technical problems posed by the building of an atomic industry is that of the elimination of various radioactive wastes—both the substances extracted from the reactor and also the cooling medium for the latter unless this operation is a closed circuit.

The G1 pile which has been operating at Marcoule, France, since early 1956 is air-cooled and the engineers of the French Atomic Energy Commission have had to design filters capable of eliminating from the cooling air the radioactive elements which it contains after leaving the reactor.

As an additional safety measure, filtered air is released into the open atmosphere at a great height to produce the greatest possible dilution in the surrounding air.

For this, the Atomic Energy Commission constructed at Marcoule an exhaust stack 328 ft high, 32 ft in diameter, equipped at the top with a suitably shaped deflector, designed on the basis of wind tunnel experiments.

Structural design

Structural design by E. Freyssinet had to take into account poor stability of existing soil for the foundation, and the need for two air duct openings 16 x 16 ft at the tower's base. Three piers 23 x 23 ft were constructed 63 ft on centers, in a triangular arrangement. On these piers rests the triangular foundation slab, anchored as described below under "prestressing."

A subbase 42½ ft high provides for the passage of exhaust air flues between the three feet of the base. Base points of these feet coincide with the corners of the foundation slab. Each base support is in shape of one-third of an oblique cone, whose directrix is the arc of a circle with 120 deg angle at the center, located in the horizontal plane 37 ft above the foundation slab. Vertical planes connect these cone-thirds tangentially. Arches between the supports provide for the passage of the flues. Top of the subbase terminates in a cylinder with walls 2½ ft thick.

To this cylinder is secured, by prestressing, a tube 285 ft high, entirely prefabricated on the ground in 24 segments consisting of nine panels each, with each segment 11¾ ft high. Tube wall is only 3 in. thick in the upper 20 segments and is reinforced every 5¾ ft by exterior ribs molded during the prefabrication of the panels.

Prestressing system

All sections of the structure are prestressed. For the foundation piers, slab, and subbase,

*Abstract of an article prepared by P. Galabru, Civil Engineer and Assistant Director General, Compagnie Industrielle de Travaux (Enterprises Schneider), Paris, France.

Freyssinet cables consisting of 12 tough steel wires 9/32 in. in diameter were assembled in a spiral metallic sleeve and equipped with reinforced concrete anchors. A smaller unit with separate 9/32-in. wires, anchored individually, was used for the tube. This produced a prestressing of about 3.5 tons per wire.

Foundation piers which serve normally as support points can also act as counterbalance and furnish a part of the safety factor against the overturning. Cables embedded in the piers therefore serve to prestress the anchor bolts intended to prevent a possible rising of one of the corners of the slab. These anchors have been constructed in such a manner that it is possible, if the terrain should settle, to keep the structure aligned by means of Freyssinet flat jacks.

The foundation slab is prestressed in two orthogonal directions and the marginal ribs have been prestressed at 700 tons since they serve also as tie bolts for the supports of the subbase. Subbase wall is almost entirely prestressed in two directions.

The tube has been prestressed vertically with a total force of 1500 tons at its base (18 x 24 wires with a diameter of 7 mm) which decreases rapidly toward the top. Each reinforcing rib is prestressed by nine 7-mm wires to provide adequate wind resistance.

Construction methods

The foundation piers, slab, and subbase were cast in forms on location. Tube panels were prefabricated in two stages. Reinforcing ribs were first cast in metallic molds followed by placing of concrete for the complete panels in concrete molds. In both cases, steam heating was used to attain the anticipated rate of four finished panels per day.

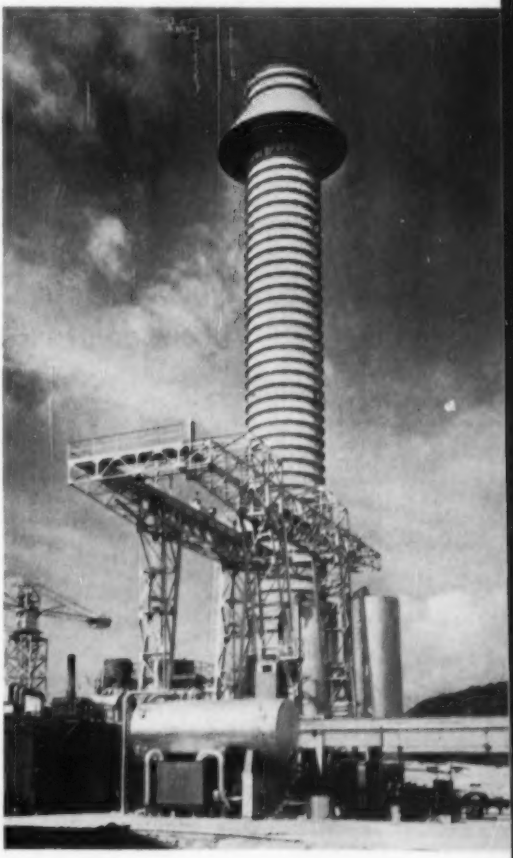
Tower crane

Erection was accomplished by means of a tower crane in the center of the structure, braced against the interior wall. Two tubular scaffolds mounted against the concrete walls, one at the interior and one at the exterior, were raised by the crane at the rate of progress in construction, jointing, and prestressing of the panels. The Compagnie Industrielle de Travaux (Entreprises Schneider), Paris, contractor in charge of construction, was able to lower the time for construction of a tube segment to 36 hr by working in 24-hr shifts. To this time must be added that required for raising the scaffoldings and the raising of the crane tower. The Rhône Valley is in a region of high wind forces, and favorable weather periods had to be utilized to the fullest.

Interior duct

The interior metal duct is of sheet steel 3 mm thick and consists of nine vertically-generated small arches parallel to the interior surface of the tube. This duct is to divide the interior of the tube into two zones, since the "primary" air from the reactor circulates everywhere in the ducts surrounded by "secondary" air slightly under pressure.

Photograph by H. Baranger, Paris



Top: Torresdale Filter Plant: Morris Knowles, Inc., Design — McCloskey & Co., Construction

Spillway Structure, Greater Chao Phya Project — Royal Irrigation Department

Servicised Rubber Waterstop and Self-Expanding Cork Joint Filler SOLVE the SAME PROBLEM

When engineers for two widely separated projects—the Spillway Structure of the Greater Chao Phya Dam in Thailand and the Torresdale Filter Plant in Philadelphia specified premolded expansion joint and waterstop, they chose Servicised Self-Expanding Cork Joint Filler and Dumbbell Type Rubber Waterstop for optimum performance under every condition.

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Servicised Dumbbell Type Rubber Waterstop provides superior characteristics of ultimate elongation, tensile strength and retention in the concrete during contraction to insure an effective seal of joints against water pressure. Available in 2 types—Hollow Bulb and Flat, in 6", 9" and 12" widths. New Union makes field splicing a fast, simple operation. Split Type Waterstop also available.

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ACI-ASCE Joint Committee 333 holds first meeting

Chairman Ivan M. Viest presided over the first meeting of the ACI-ASCE Joint Committee 333, Composite Construction, held February 24 in Dallas. The objective of the committee is to prepare recommendations for the design and construction of structures composed of prefabricated beams combined with cast-in-place slabs.

Under the leadership of Professor Viest, University of Illinois, Urbana, the committee has embarked on a systematic study of composite construction covering such specific problems as working load design, ultimate load design, volume changes, and shear connections with the aim of correlating existing information and pointing out areas where research is needed. Subsequently the activities of the committee should lead toward the preparation of a manual for composite design and construction.

Other members of the committee are:

Irwin A. Benjamin
Granco Steel Products Co.
St. Louis, Mo.

W. E. Bradbury
Sheffield Steel
Kansas City, Mo.

Prof. A. A. Brielmaier
Washington University
St. Louis, Mo.

M. E. Fiore
Hall and MacDonald
New York, N. Y.

R. S. Fountain
Fountain Engineers
Avondale Estates, Ga.

Frank J. Hanrahan
American Institute of Timber Construction
Washington, D. C.

W. J. Jurkowich
California Division of Highways
Sacramento, Calif.

N. J. Law
American Institute of Steel Construction
St. Louis, Mo.

A. M. Lount
T. O. Lazarides, Lount & Partners
Toronto, Ont.

Phil P. Page, Jr.
Seeley, Stevenson, Value and Knecht
New York, N. Y.

Prof. Bruno Thurliman
Lehigh University
Bethlehem, Pa.

Robert J. Van Epps
Portland Cement Association
Chicago, Ill.

C. H. Westcott
Consulting Engineer
Chicago, Ill.

Prof. Ardis White
University of Houston
Houston, Tex.

World Conference on Prestressed Concrete

The American Concrete Institute along with the International Federation de la Précontrainte, American Society of Civil Engineers, American Association of State Highway Officials, American Railway Engineering Association, American Institute of Architects, Prestressed Concrete Institute, and Portland Cement Association will participate in the University of California-sponsored World Conference on Prestressed Concrete to be held in San Francisco, July 29 through August 2.

Prof. T. Y. Lin is chairman of the general arrangements committee for the conference and is assisted by Prof. J. W. Kelly, Prof. Alexander C. Scordelis, and Kenneth L. Downes, Jr., all of the University of California; Ben C. Gerwick, Jr. and Robert Singer of Ben. C. Gerwick, Inc., San Francisco; Harold A. Price and Jack Streblow of Basalt Rock Co., Inc., Napa, Calif. Thor Germundsson, Portland Cement Association, Chicago, has been appointed ACI representative on the program and advisory committees.

The conference will feature some 70 papers on precast prestressed members, prestressed thin shells and slabs, research, design, and construction in various countries. Panel discussions will be conducted on materials, techniques, production, and design.

WANTED

ACI JOURNAL — BACK ISSUES

December 1948, Part 2

December 1950, Part 2

Needed for preparing additional bound volumes.

Reply to Publications Dept.,
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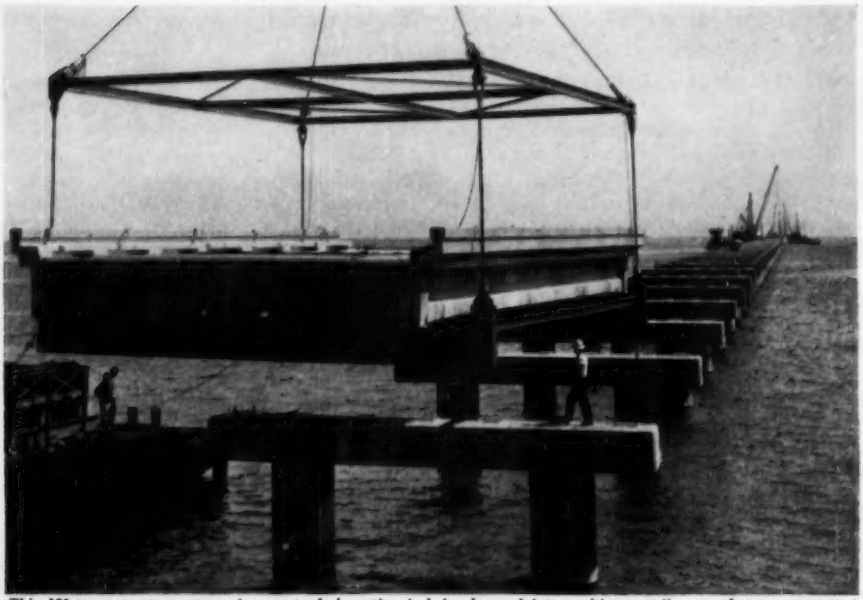

This 180-ton precast, prestressed concrete deck section is being lowered into position on pile caps that are supported on hollow 54" prestressed piles. There are 2,235 of these deck spans on the 24 mile causeway across Lake Pontchartrain near New Orleans.

Why They Used Plastiment in the World's Longest Highway Bridge...

Efficient single unit beam-and-deck design and economical mass production are outstanding features of this 24 mile causeway across Lake Pontchartrain. Each day eight 56 foot deck-spans are cast in a single bed containing pretensioned wires.

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ACI Cooperates in Concrete Conferences

Paul F. Rice, ACI technical director, addressed local area groups at Montana State College, Iowa State College, University of North Dakota, and Case Institute of Technology recently.

Montana State College

The Departments of Architecture and Civil Engineering of Montana State College, Bozeman, presented a 2-day Quality Concrete Conference, March 25-26. Cooperating sponsors were: American Concrete Institute; Montana Chapter American Institute of Architects; Montana Section American Society of Civil Engineers; Associated General Contractors of America (Montana Chapter); National Ready Mixed Concrete Association; Montana Ready Mixed Concrete Association; and Portland Cement Association.

Approximately 110 attended four sessions which were presided over by Dr. E. R. Dodge, head of the civil engineering department at the college, Prof. H. C. Cheever, head of the department of architecture, Jack Y. Barnes, Portland Cement Association, Helena, Mont., and Prof. Hugo Eck, department of architecture, Montana State.

Iowa State College

Some 150 persons attended the eighth annual Better Concrete Conference, March 21-22, at Iowa State College, Ames. ACI President Walter H. Price was the principal speaker at the March 21 evening session; his topic was "Dam Concrete." Earlier in the day ACI technical director Paul F. Rice reported on the ACI Dallas convention. Fred F. Loy, Portland Cement Association, Des Moines, presided at the luncheon preceding Mr. Rice's talk. The afternoon session was presided over by ACI member, Thomas J. Reading, U. S. Army Corps of Engineers, Omaha. Another ACI member on the program the first day of the conference was Ray A. McCann, Basalt Rock Company, Inc., Napa, Calif., who spoke on "Lightweight Prestressed Concrete."

ACI members participating the second day included: Carlos D. Bullock, Burgwin & Martin, Topeka, who presided at the morning session; John H. Banker, Portland Cement Association, Chicago, who addressed the group on "Precast Concrete—Field and Plant Casting;" M. L. Hurst, C. W. Shirey Company, Waterloo; Glenn Murphy, head of the department of theoretical and applied mechanics, ISC, whose talk was entitled "Concrete in the Nuclear Field—Shielding—Other Applications." S. J. Chamberlain, professor of theoretical and applied mechanics at Iowa State, presided at the closing session of the conference, and Delmar L. Bloem, National Ready Mixed Concrete Association spoke on "Problems of Concrete—Evidence from the Laboratory."

The conference was sponsored by Engineering Extension, ISC, and presented by the Department of Theoretical and Applied Mechanics, in cooperation with the following organizations: American Concrete Institute; Portland Cement Association; Iowa Ready-Mixed Concrete Association; Iowa Highway Commission; Iowa Engineering Society; American Institute of Architects (Iowa); American Society of Civil Engineers (Iowa); Master Builders of Iowa; and Associated General Contractors of Iowa.

University of North Dakota

The College of Engineering, University of North Dakota, conducted its fourth annual Concrete Conference, March 18-19, at Bismarck Junior College. Cooperating in the conference were the Portland Cement Association; Associated General Contractors of North Dakota; North Dakota Association of Architects; North Dakota Society of Professional Engineers, and Bismarck Junior College.

Governor Davis of North Dakota addressed a luncheon meeting, welcoming 175 persons who attended the conference. At the opening session Paul F. Rice addressed the group on "Reinforced Concrete Frame and Floor Systems for Economy" and the following day spoke on "Prestressed Concrete Bridges." Among the other Institute members on the program were: Oscar Manz, University of North Dakota, Grand Forks, whose talk was entitled "North Dakota Clay and Concrete Aggregate Resources;" Frank Erskine, Expanded Shale, Clay and Slate Institute, Washington, D. C., who addressed the group

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on "Lightweight Concrete—Structural Uses;" J. H. Banker, Portland Cement Association, Chicago, who discussed "Floors and Finishing." Max P. Brokaw, PCA, Chicago, presented "Fundamentals of Design," and John C. King, Intrusion Prepakt, Inc., Cleveland, spoke on "Intrusion Prepakt Concrete."

Case Institute of Technology

On April 10 the Case Institute of Technology held its second annual Concrete Conference on the Case campus in Cleveland with 110 in attendance.

Paul F. Rice, ACI technical director, presided at the afternoon session. After a welcome by Dean Karl B. McEachron, Jr., a discussion on "Folded Plates—Practical Solution to Wide Spans" was presented by Richard H. McClurg, structural engineer, Detroit. The afternoon session included "Theory of Thin Shell Analysis" by Alfred L. Parme, Portland Cement Association, Chicago; and "Precast-Prestressed Elements for Buildings and Bridges" by John B. Scalzi, Case Institute of Technology, Cleveland.

The evening session was led by R. F. Wittenmeyer, The Austin Co., Cleveland. This portion of the program included addresses by: Raymond C. Reese, consulting engineer, Toledo, Ohio, on "Practical Comparison of Conventional and Ultimate Strength Designs;" Peter J. Doanides, Vacuum Concrete, Inc., Philadelphia, "Precast Elements for Shell Construction;" and closing remarks by H. G. Wood, Portland Cement Association, Columbus, Ohio.

ACI and PCA cooperated with Case in presenting the conference.

Career opportunities with the Navy

U. S. naval installations in the Pacific Ocean area—the Mariana Islands, the Republic of the Philippines, the Hawaiian Islands, Japan, and other locations—have vacancies for professional engineers in a variety of engineering fields. Salaries range from $4480 for junior grade (no professional experience) to $7570 for senior level with additional overseas pay granted in most areas. Detailed information is available from the Navy Board of U. S. Civil Service Examiners for Pacific Overseas Employment, 45 Hyde St., San Francisco 2, Calif.

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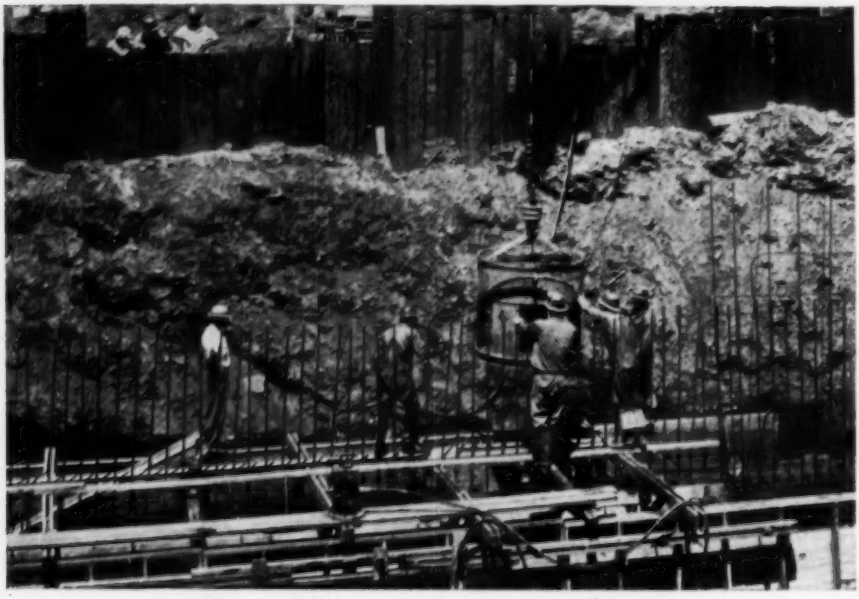

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Board announces committee chairmen, appointments

Listed below are committee chairmen recently appointed for 3-year term and other committee appointments made by the Board of Direction.

Committee 315—Detailing Reinforced Concrete Structures

James N. DeSerio, consulting engineer, Buffalo, N. Y., has been appointed chairman.

ACI-ASCE Committee 326—Shear and Diagonal Tension

C. S. Whitney, Ammann & Whitney, Milwaukee and New York, has been reappointed chairman.

Committee appointed to study bylaws revision

The Board of Direction has appointed a committee to draft appropriate revisions to the bylaws of the Institute to provide for the establishment and regulation of local or regional organizations on a uniform basis and such other revisions to the bylaws as may be found desirable for the orderly operation of the Institute.

Bryant Mather, Waterways Experiment Station, Vicksburg, Miss., will head the committee which includes Douglas McHenry, Portland Cement Association, Chicago; J. W. Kelly, University of California, Berkeley; and William A. Maples, ACI Secretary-Treasurer.

Kerekes to head Standards Committee; McHenry and Whitney appointed

ACI past president Frank Kerekes, Michigan College of Mining and Technology, Houghton, will serve as chairman of the ACI Standards Committee for the coming year. Douglas McHenry, Portland Cement Association, Chicago, and Charles S. Whitney, Ammann and Whitney, New York and Milwaukee, were appointed to the committee for 3-year terms. Other committee members are: Douglas E. Parsons, National Bureau of Standards; Washington, D. C.; R. E. Copeland, National Concrete Masonry Association, Chicago; Raymond C. Reese, consulting engineer, Toledo, Ohio; and Charles H. Scholer, Kansas State College, Manhattan, Kan.

The following reappointments have been made for terms of 1 year:

Committee 214—Evaluation of Results of Compression Tests of Field Concrete

W. A. Cordon, Utah State Agricultural College, Logan, will continue to serve as chairman.

Committee 317—Reinforced Concrete Design Handbook

Thor Germundsson, Portland Cement Association, Chicago, will remain as committee head.

Committee 324—Precast Reinforced Concrete, Thin Sections

A. Amirikian, Bureau of Yards and Docks, Washington, D. C., has been reappointed chairman. The new committee title was recently adopted to more clearly reflect the work of this committtee.

Committee 325—Structural Design of Concrete Pavements for Highways and Airports

E. A. Finney, Michigan State Highway Department, Lansing, will continue to serve as chairman.

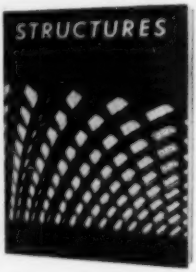
Committee 617 — Specifications and Recommended Practice for Concrete Pavements and Bases

H. F. Clemmer, Government of the District of Columbia, Washington, D. C., continues as chairman.

Troxell to ASTM committee

G. E. Troxell, University of California, Berkeley, will serve as ACI representative on ASTM Committee E5, Fire Tests of Materials and Construction.

The great engineer and builder explores the characteristics and potentialities of reinforced concrete.



STRUCTURES
by
Pier Luigi Nervi

translated by
Giuseppina and
Mario Salvadori

A MASTERFUL SUMMATION

Pier Luigi Nervi of Rome sums up his forty years as architect, engineer, and builder in reinforced concrete, in which he has designed and built some of the largest and most beautiful thin-shell concrete structures in the world.

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PHILOSOPHICAL

In addition to the technical material, Nervi also presents his original thinking on the aesthetics of architecture and the philosophy of building correctly. He states his outspoken ideas on training of architects and engineers, theory of structures, value of model analysis, and architect-client relations.

— CONTENTS —

Foreword by Mario Salvadori
Preface
1. Building Correctly
2. Structural Characteristics of Reinforced Concrete
3. Imperfect Elastic Behavior of Concrete
4. Ferro-cemento
5. Structural Prefabrication
6. Experimental Model Analysis
7. Structural Freedom and the Future
Appendix

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Tuthill to head reactivated Committee 614

Committee 614, Measuring, Mixing, and Placing Concrete, has been reactivated with Lewis H. Tuthill, California State Department of Water Resources, Sacramento, as chairman. The committee was originally organized in 1936 and discharged in 1942 after formulating the standard "Recommended Practice for Measuring, Mixing, and Placing Concrete (ACI 614-42)." The mission of the reorganized committee is to review and revise the 1942 report making it consistent with later standards and publications, and later practices and concepts in measuring, mixing, and placing operations. The revised report will include requirements on accuracy of measurement, provisions for control, and data on performance requirements of concrete mixing plants.

Chairman Tuthill called a meeting of the committee at Dallas during the ACI convention and organized the members into task groups, each assigned to work on specific parts of the above general assignment. Members of the reorganized committee are:

Harry N. McLean
Uhl, Hall & Rich
Massena, N. Y.

Donald K. Woodin
East Bay Municipal Utility District
Oakland, Calif.

L. P. Witte
U. S. Bureau of Reclamation
Denver, Colo.

Thomas J. Reading
Corps of Engineers
Omaha, Neb.

Dale S. McMillen
Master Builders Co.
Cleveland, Ohio

E. L. Howard
Pacific Cement & Aggregates, Inc.
San Francisco, Calif.

Alvin W. Brust
Washington University
St. Louis, Mo.

Bert Noble
The Noble Co.
Oakland, Calif.

H. F. Hedderich
Pittsburgh Testing Laboratories
Pittsburgh, Pa.

Admiral J. J. Manning
Concrete Industry Board
New York, N. Y.

J. W. Winkworth
Winkworth Fuel & Supply Co.
Detroit, Mich.

James A. Nicholson
Nicholson Concrete Co.
Toledo, Ohio

John W. Poulter
Koehring Co.
Milwaukee, Wis.

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New technical committees formed

Following is a brief résumé of the mission and scope of recently organized ACI technical committees which will deal with nomenclature, durability, floor finishes, and shell structures.

Committee 116, Nomenclature—Richard C. Mielenz, the Master Builders Co., Cleveland, will be chairman. Committee 116 will be responsible for maintaining an up-to-date glossary of terms in the field of cement and concrete technology and will recommend standard terminology for materials, conditions, and practices. As a standing mission, the committee will solve problems in terminology created by new developments and will make periodic additions to keep the glossary current.

It is the intention to develop as comprehensive a glossary as practicable, limited to terms or definitions peculiar to the field of cement and concrete. Liaison with specialized organizations in the field will help define the scope of activity for Committee 116 and simultaneously avoid conflict with recommendations developed by other organizations.

Committee 201, Durability of Concrete in Service—Hubert Woods, Portland Cement Association, Chicago, will serve as chairman. The committee will review research on durability of concrete and previous recommendations to insure satisfactorily durable concrete. It will report recommendations for materials and methods to secure concrete with maximum resistance to deterioration, to preserve concrete against deterioration, and to restore deteriorated concrete. The committee may offer suggested specifications or recommended practices to achieve the above objectives.

The scope of committee work will be limited to material suitable for specifications or a basis for specifications. This study of *durability* will include resistance to abrasion,

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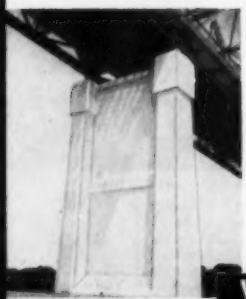

When the concrete bridge piers began to disintegrate so badly that reinforcing was exposed, Western was called on to do the repair job. The piers were restored with gun-applied concrete and weather-proofed with special water-repellent grout. The caps, in exceptionally poor condition, were completely rebuilt.

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freezing and thawing, ice-removal agents combined with freezing and thawing, and destructive (chemical) agents, but not erosion in hydraulic structures nor fire resistance.

Committee 334, Concrete Shell Structures—Chairman will be Anton Tedesko, Roberts & Schaefer Co., New York. The committee is to review present knowledge in the entire field of shell structures, including both theory and applications and to prepare an initial report on present practices in analysis, design, and specifications for materials and construction. Ultimately, the committee will report recommended practice for specifications and design of shell structures to supplement provisions of the ACI Building Code.

Design recommendations for cylindrical shells and folded-plate roofs may be made by reference to reports of other organizations investigating these types. Recommendations for shell storage structures may be made by reference to reports of ACI Committee 714.

Committee 402, Concrete Floor Finishes—Gerald Milsom, Metallicrete Floor Co., Ltd., Montreal, will act as chairman. The committee will review all reports of ACI committees and papers by individuals on concrete floor finishes, suggest a standard abrasion test, and prepare a recommended practice on materials and construction methods. The final report of the committee will include a specification on concrete floor finishes supplementing the work of Committee 401, Specifications for Structural Concrete.

The entire range of concrete floor finishes including heavy-duty types exposed to industrial traffic wear and aggressive chemicals, and exposed decorative floors will be studied. A scale of performance ratings based on a standard wear test will be established, and recommended ranges of ratings for various classes of use will be established.

Committees discharged

Missions of the following committees having been accomplished, they were discharged by the Board of Direction Feb. 24, 1957:

Committee 327—Ultimate Load Design, Joint ACI-ASCE Committee

A complete report of the findings of this committee, "Ultimate Strength Design," was issued in 1955 and published by both sponsoring organizations (January 1956 JOURNAL). Leo H. Corning, Portland Cement Association, Chicago, headed the committee which was organized in 1952.

Committee 604—Winter Concreting Methods

The efforts of this committee resulted in a new standard, "Recommended Practice for Winter Concreting (ACI 604-56)," published in the June 1956 ACI JOURNAL; this standard superseded ACI 604-48. Lewis H. Tuthill, California State Department of Water Resources, Sacramento, was chairman.

Errata

The following correction should be made in "Proposed Revision of Specifications for Concrete Pavements and Concrete Bases," reported by ACI Committee 617 in the April 1957 JOURNAL.

p. 943—Section 1401(d), next to the last sentence should read: "Such measurement shall be made at intervals of not less than 200 ft."

* * *

The following corrections should be made in "Tests of a New Method for Evaluating Volume Changes of Concrete Masonry Units," by M. W. Ferguson, G. L. Kalousek, and C. W. Smith, in the April 1957 JOURNAL.

p. 954—In Fig. 4, the 67.3 percent M.C. refers to Curve 2 *after* 1 day of drying. The indicator line was incorrectly drawn.

p. 956—In Fig. 6, the ordinate should read LENGTH CHANGE instead of VOLUME CHANGE.

* * *

The following corrections should be made in "Elastic Design of Prestressed Sections in Flexure by Charts or Tables," by Witold W. Zawilski, in the April 1957 JOURNAL.

p. 971—Fifth line from the bottom, concluding mathematical expression should read: $-(I/h)\, f_{t_d} - M_1$

p. 972—Third equation from the bottom of page, first term should read: $\frac{i\, f_{s_d}}{a}$

p. 973—Eq. (14_1) should read:

$$N = \frac{\nu\, L^2}{f_1\, h} = e_{y_2} - \mu \qquad (14_1)$$

p. 986—Denominator of the second term of Eq. (c) should be $z_1 h_2$.

Casting concrete on textured sheet rubber*

By F. E. Jones

The use of rubber molds in the making of confectionery is well known—the same idea has recently been applied in building work. Concrete has been cast against specially molded rubber mats and thus provided with a keyed surface suitable to receive cement rendering and plaster finishes.

Recently some progress has been made with this development, partly for aesthetic purposes, and in part for economy in finishing. Forms are lined by a textured rubber sheet and therefore kept clean and dry. The production of a proper finish directly from the rubber eliminates further processing, either by the application of further coatings, or by the removal of the surface of the concrete. A wide variety of finishes can be obtained in one operation, instead of two, and with a smaller labor force. The use of rubber sheeting in this way is applicable to both precast and cast-in-place work.

Precast concrete

In the manufacture of precast concrete units a sheet of figured rubber is placed in the bottom of a mold and concrete placed on top. When it has set, the mold is collapsed, the concrete turned over, and the rubber peeled off. The resultant surface is suitable as a decorative feature of the building and requires no further treatment.

In the work undertaken so far on large castings, the sheets have been bonded to the mold, whereas for smaller jobs the sheets have been laid loose and subsequently peeled from the face of the set slab as noted above (Fig. 1).

There have been different practices regarding the use of parting agents. Where none has been used, it has been found desirable to allow the concrete to set well before removing the rubber so as to avoid "plucking" of the green concrete. No special mixes have been used, and there has been no question of placing selected material at the face of the work. The normal vibrating techniques insure that fine particles work to the surface and adequately cover all aggregate. The use made of textured rubber sheets by architect Bertram Carter at a factory at Stratton St. Margaret, near Swindon, England, is shown in Fig. 2.

Cast-in-place concrete

Rubber can be used to impart a decorative finish to cast-in-place concrete without the need for further treatment after the forms are stripped. Opinions vary as to the methods used and each job has to be considered on its own merits. Some excellent results have been achieved by nailing the sheets to the forms. In other cases it has been found preferable to glue them to the form. When a lubricant has been used it has often been castor oil since rubber is adversely affected by repeated contact with mineral oils. Experiments are now being conducted using whitewash and other forms of lubrication.

The presence of the rubber lining creates no special problem in concreting. Either external or internal vibration may be applied.

Fig. 1—Peeling figured rubber sheeting from an experimental precast concrete slab after removal of slab from the mold

*Abstracted from *Rubber Developments*, V. 9, No. 4, Winter 1956. See also ACI "News Letter," June 1956, p. 39.

In the internal method, if a vibrator head touches the rubber lining, it is likely to do less harm than if other materials were used in that position. The designer arranges construction joints between the faces of adjacent mats so that the final effect of the wall is esthetically satisfactory in terms of both line and mass.

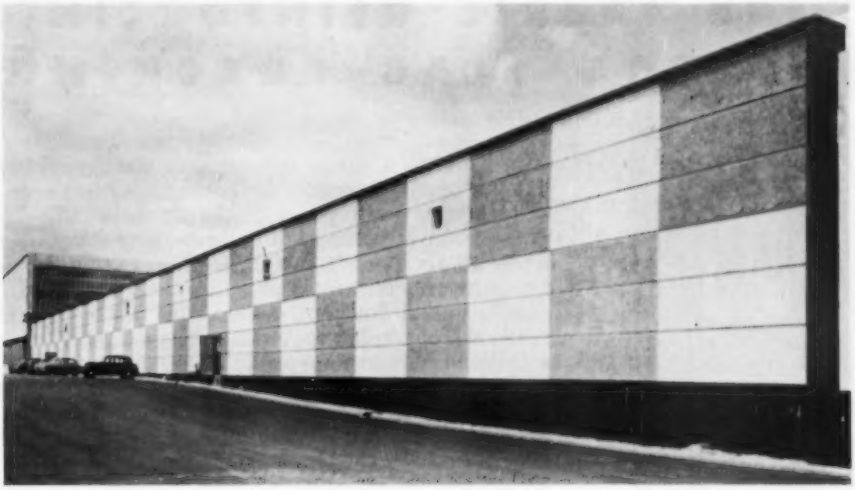

Fig. 2—Textured rubber was used to impart a "crepe" finish to precast concrete wall slabs for a British factory

ASTM Committee C-12 recommends new specifications for masonry mortar

Aggregates for masonry grout are covered in proposed new specifications accepted by ASTM Committee C-12 on Mortars for Unit Masonry at its meeting held on Feb. 7, 1957, during ASTM Committee Week in Philadelphia. This proposed specification will include both natural and manufactured sand used alone, or in combination with coarse aggregate in grout for reinforced masonry. Subject to a favorable letter ballot of the committee, it will be presented for acceptance at the ASTM annual meeting in June.

The present "Specification for Mortar for Unit Masonry" (C 370) is to be revised to avoid misuses which have been observed. Field tests of mortar are being conducted and the resulting test data referred to the requirements of C 270. This is not the intent of the specification. The revision will clarify this to prevent such misuse.

Officers of Committee C-12 are: R. E. Copeland, National Concrete Masonry Association, chairman; Harry C. Plummer, Structural Clay Products Institute, vice-chairman; P. M. Woodworth, The Waylite Co., second vice-chairman; and C. U. Pierson, Jr., Southern Cement Co., secretary.

ASCE schedules spring convention in Buffalo

The American Society of Civil Engineers will hold its annual spring convention in Buffalo, June 3-7, 1957.

The ASCE Structural Division will present four technical sessions and three field trips. A paper on model testing, design, and construction of a 350-ft reinforced concrete stack for the Niagara Mohawk Power Corp. will be given at the June 4 session.

A program on folded plate structures has been arranged for the Wednesday morning session, June 5. Authors participating in the session are Howard Simpson, Massachusetts Institute of Technology, Cambridge; Robert B. B. Moorman, Syracuse University, Syracuse, N. Y.; and A. L. Parme and W. Burr Bennett, both of the Portland Cement Association, Chicago.

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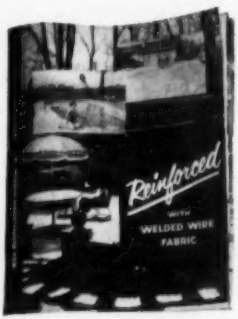

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Positions and Projects

Steinman honored

The University of Florida conferred the latest of a long list of honors on Dr. David B. Steinman, internationally famous engineer, long an ACI member, when its college of engineering dedicated Steinman Lounge, for its faculty, on March 11 in Gainesville.

This honor is only one of several scheduled for Dr. Steinman this spring. On April 25, in New York he received for the second time in 16 years, the J. Lloyd Kimbrough Medal awarded by the American Institute of Steel Construction. He is also slated to receive honorary degrees from Tampa University, Florida Southern College, and Loyola University.

Weymouth promoted

Edward A. Weymouth has been appointed manager of sales for United States Steel's Michigan Limestone Division, Detroit.

Mr. Weymouth is a member of ACI, ASTM, the Eastern States Blast Furnace and Coke Oven Association, and the Association of Highway Officials of the North Atlantic States.

Rettig appointed Harza associate

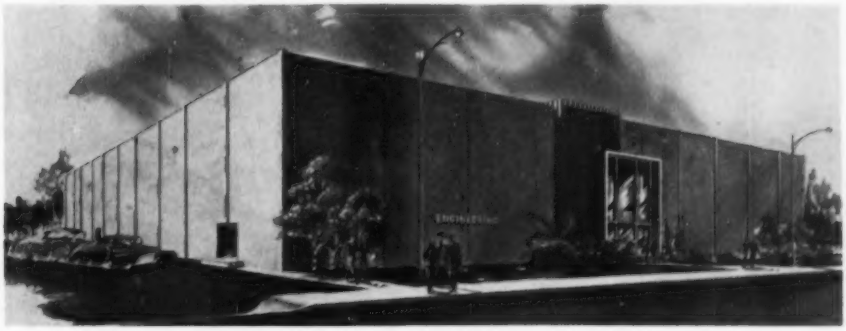
Erick Rettig, formerly resident engineer in the Philippines, for the Harza Engineering Co., Chicago, has been appointed an associate of the organization. Mr. Rettig has been an ACI member since 1937.

Great Lakes Carbon merges dicalite and perlite divisions

The Great Lakes Carbon Corp., Los Angeles, has announced the consolidation of dicalite and perlite divisions into the newly organized mining and mineral products division.

D. Loring Marlett, vice-president of Great Lakes Carbon Corp. and formerly general manager of the dicalite and perlite divisions, has been named general manager of the mining and mineral products division. Joseph E. Moran, formerly assistant general manager of the dicalite division, has been appointed assistant general manager of the new division. Administrative headquarters will be located in the company's Los Angeles office.

TILT-UP SLAB AND STRUCTURAL frame design were used by Aerojet-General Corp. in erecting new engineering building. To expedite construction, forms were constructed outside the building and the tilt-up slabs were cast in stacks of five, each slab weighing approximately 35 tons and measuring 20 x 33 ft, 7½ in. thick. These are some of the largest tilt-up panels erected in the southern California area.
Slabs were connected by cast-in-place columns which were incorporated as seat for the structural steel framing for the second floor and roof. The building contains 40,000 sq ft on each of the two floors. In addition, a security-type vault enclosing some 4000 sq ft, is in the basement with other basement area assigned for building services.



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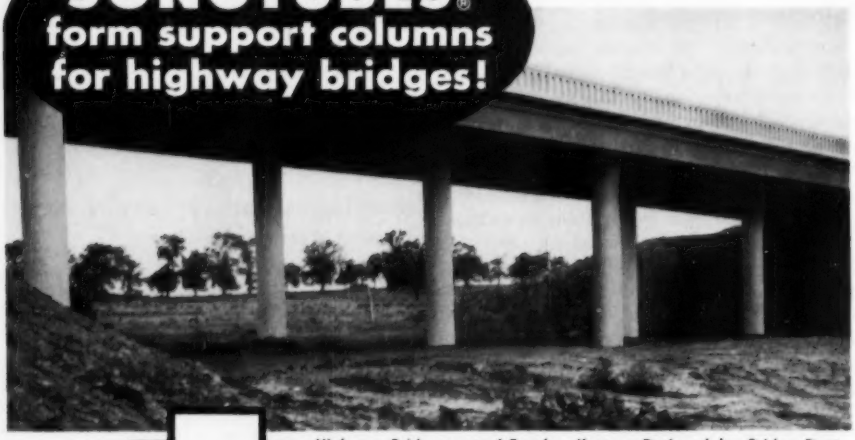

Highway Bridge west of Topeka, Kansas. Designed by Bridge Dept., Kansas State Hwy. Comm. J. W. Frisbee, Kansas City, Mo., contractor.

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Heat will be transferred from the reactor to four steam generators by four parallel, pressurized water systems. The four boilers are paired in two groups, each group being enclosed in a container made of heavy steel plate. Another similar steel container holds the auxiliaries, and a fourth spherical steel container houses the nuclear reactor.

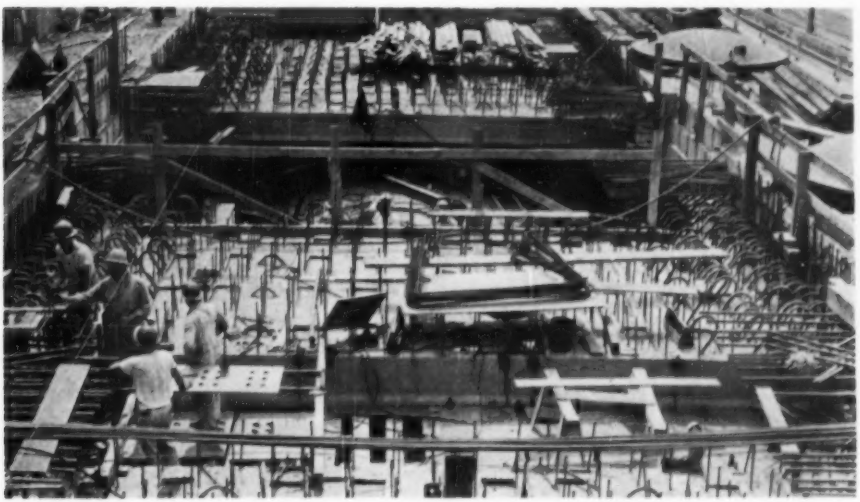
Each of these four steel containers is housed in a separate concrete block house, with 5 ft thick walls and roof. The supporting slabs are 7 ft thick. These block houses are rather impressive structures—the boiler containers which they house are 50 ft in diameter and 147 ft long. The auxiliary container is 50 ft in diameter and 97 ft long, and the reactor sphere is 38 ft in diameter.

Necessary thickness of many of the structural concrete components presented continuing difficulties. For example, the roof of the vapor container enclosure is 5 ft thick, and must be suspended 60 ft above the base. Walls of the container itself could not be used to bear any of the load.

To construct this roof, precast sections of concrete 2 ft thick were made, so as to minimize massive falsework. These sections, weighing up to 20 tons each, were then hoisted into place. After they were secured in position, they functioned as forms for the additional 3 ft of concrete necessary to make up the total thickness.

Cast-in-place sections

When openings were required in container roofs, it became necessary to cast the entire 5-ft sections in place. In these cases, forms were supported by a complex overhead falsework, consisting of wide-flange beams and a forest of hanger rods. Since sufficient steel beams were not available, arrangements were made with the U. S. Army for use of



Roof of the block house for auxiliary container was formed by precast sections 2 ft thick. Here the forms are ready for placement of the additional 3 ft of concrete

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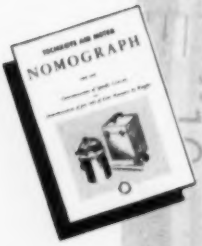

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Concreting at Shippingport proceeded through freezing weather with steam piped under canvas enclosures to permit proper concrete curing

Bailey bridges, which proved adequate in spite of their flexibility.

An unusual amount of reinforcing steel was provided in all concrete structures; #11 bars were used almost throughout, to such an extent that the average slab will contain approximately 200 lb of steel per cu yd of concrete, in contrast with the usual 80-90 lb per cu yd. Final total of reinforcing steel will be approximately 10,000,000 lb.

Firm schedule maintained

To maintain a tight schedule, concrete had to be placed during snowy and freezing winter weather. Drastic measures were employed to keep the fresh concrete from freezing. A low-pressure boiler was brought to the site, and saturated steam was piped under canvas enclosures which were placed over all the freshly placed concrete sections.

To minimize the problem of finishing the concrete, lacquered plywood was used for the face of the cantilever forms constructed on the job.

Minimum time between adjacent concrete placements was 72 hr. The average placement was 8 ft high, 30 ft long, and 5 ft thick, with shrinkage blocks approximately 10 ft long. All joints were waterstopped with a key system and a rubber dumbbell waterstop.

Burns and Roe, Inc., New York, and their associates J. Rich Steers, and Hatzel and Buehler, are agent-constructors for the Duquesne Light Co. in the building of the conventional section of the plant and the structures housing the reactor.

W. G. Irmscher heads Detroit CIB

The Concrete Improvement Board of Detroit recently elected W. G. Irmscher, Peerless Cement Corp., Detroit, as chairman of its board of directors. M. E. Honderick, Thomas E. Currie Co., was chosen treasurer and Donald H. Ziegler, Cooper Supply Co. is the new secretary.

PROFESSIONAL CARD

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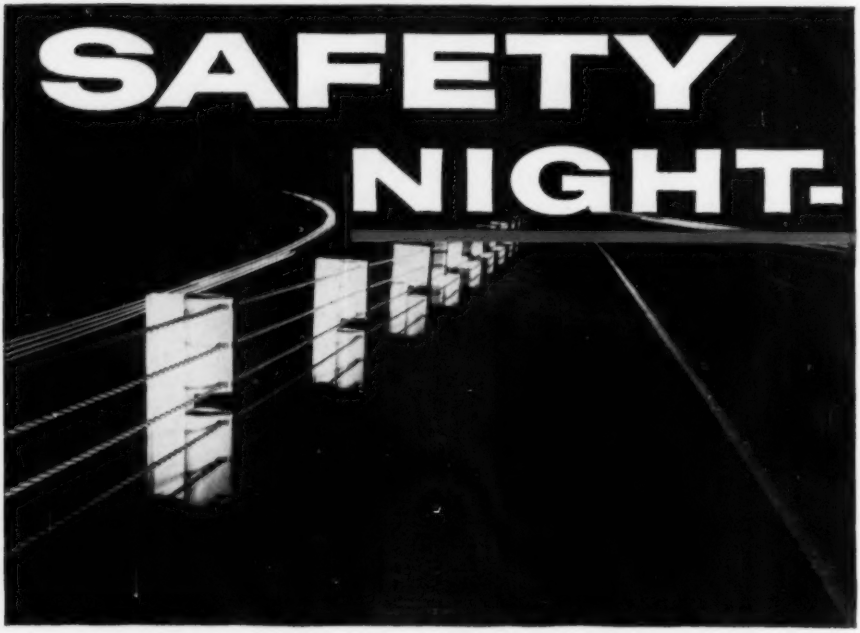
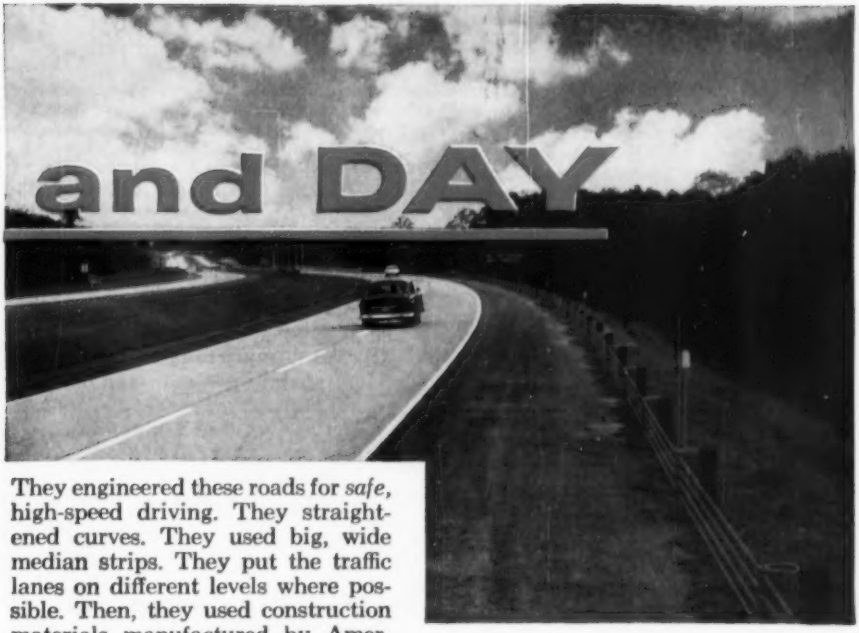


ALONG THE ROAD. Day and night, Multisafty Cable Guard stands guardian on America's newest highways, giving two-fold protection from serious accidents. It restrains vehicles from plummeting off the berm. In addition, its resilient combination of strong, steel cables and spring-steel offset brackets cushions the shock of any collision . . . helps prevent damage to the vehicle and injury to passengers.

ECONOMY IN CULVERTS.

American Welded Wire Fabric brings the same service-lengthening benefits to culverts as to pavements. Concrete, reinforced with Welded Wire Fabric, is the economical way to build culverts because this combination of materials resists abrasion, has the strength to withstand high stresses, and is easily installed.

USS Multisafty Highway Guard



They engineered these roads for *safe*, high-speed driving. They straightened curves. They used big, wide median strips. They put the traffic lanes on different levels where possible. Then, they used construction materials manufactured by American Steel & Wire to enhance the basic safety designed into the road.

Materials such as Multisafty Highway Cable Guard which protects the sides of the road . . . American Welded Wire Fabric which lengthens the life of the pavement, keeps it smooth, easy-riding, and safe . . . and specially designed American Road Joints which smooth the transition from slab to slab.

These are essential materials for any truly modern highway. Use them in your roads . . . in your city streets. Send the coupon for complete information.

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PACIFIC COAST DISTRIBUTORS
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IN THE PAVEMENT A smooth pavement is a *safer* pavement. And American Welded Wire Fabric and American Road Joints help assure extra years of smooth, safe riding on great new highways such as the Ohio Turnpike, the Pennsylvania Turnpike, the Indiana Toll Road, and others.

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- ☐ American Welded Wire Fabric for Portland Cement Concrete
- ☐ American Welded Wire Fabric for Asphaltic Concrete
- ☐ American Welded Wire Fabric for Airport Runways
- ☐ American Road Joints
- ☐ Multisafty Highway Cable Guard
- ☐ American Beam-type Highway Guard
- ☐ American Wire and Strand for Prestressed Concrete
- ☐ Road Manual

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Firm .....

Address .....

City ..... State .....

USS American Welded Wire Fabric

UNITED STATES STEEL

Concreting continues at Alaska port; dock and apartments in service at Whittier

A $4 MILLION PERMANENT fireproof dock at the Port of Whittier was turned over to the U. S. Army in Alaska, March 1 by the Alaska District Corps of Engineers as the third permanent facility built under their supervision there.

The new docking facilities of modern steel and reinforced concrete replace Whittier's docks wiped out by a spectacular fire in 1953 at a loss of $20 million. The new dock project was begun in 1954 by Patti-MacDonald Construction Co. of St. Louis. Included are a marginal wharf, an in-transit storage building with an inclosed railroad siding and loading dock, a salt water pump house and water distribution system, a sanitary sewer system, and steam and electrical distribution systems.

Port of Whittier, major military port in Alaska, is the only exclusively military port that the United States operates anywhere in the world. Two other structures erected by the Corps of Engineers at Whittier are the $4 million Hodge apartment building shown below and the $6½ Buckner building.

Lack of level building space in Whittier's tiny land area, squeezed between deep ice-free waters of Passage Canal and a backdrop of glacier-slashed mountains, dictated design of the Hodge building. This 14-story modern apartment building is home to 177 servicemen's families on duty at the isolated port. Named for the late Col. Walter William Hodge who pioneered the Alaskan highway in 1942, the building is of reinforced concrete with inner block walls. It is 244 ft long x 96 ft wide.

Two 8-in. crumble joints were used as a precaution against earth tremors. Building was constructed in two completely separate sections and 8-in. gaps between were joined by accordion-type copper sheeting. Built by the Patti-MacDonald Construction Co., its dedication was on Nov. 20, 1956.

The 7-story Buckner "composite" building, completed in 1953 by Haddock Engineers of California, with its steel-concrete-glass apartments completes the mountain-rimmed port—a whole city in two buildings. The available space for the "city" is only a half-mile triangle, less than 100 acres.

Reminder . . .

ACI Regional Meeting
October 29-30, 1957
Benjamin Franklin Hotel
Seattle, Washington

ACI 1958 Annual Convention
February 24-27, 1958
Morrison Hotel
Chicago, Illinois

Master Builders creates new executive positions

Election of Stephen W. Benedict to the newly created position of executive vice-president of The Master Builders Co., division of American-Marietta Co., Cleveland, was recently announced. Promoted to other new positions were Herbert K. Cook, vice-president for engineering, and Thomas M. Kelly, vice-president for research.

Irwin Eugene Burks

Irwin Eugene Burks, retired construction engineer, died Feb. 22, 1957. He was an early leader in development of methods of design and control of concrete mixtures in heavy construction, and participated in the construction of numerous major projects in the United States, Canada, and Panama, including Chute a Caron Dam, Madden Dam, and Bonneville Dam.

During his distinguished career as a construction engineer he was associated with the Aluminum Company of America and the Corps of Engineers, U. S. Army. Mr. Burks received the Wason Medal in 1930 for his paper, "Concreting Methods at the Chute a Caron Dam."

Who's Who This Month

ACI Committee 616

"Hot Weather Concreting" Problems," appearing on p. 1025, is reported by ACI Committee 605.

Stanton Walker, National Ready Mixed Concrete Association, Washington, D. C., is chairman of this committee and Delmar L. Bloem, of the same organization, is secretary. Committee members are: Woodrow L. Burgess, Office, Chief of Engineers, Washington, D. C.; Nomer Gray, Ammann and Whitney, New York; Ernest Gruenwald, Lone Star Cement Corp., New York; H. F. Hedderich, Pittsburgh Testing Laboratory, Pittsburgh; E. L. Howard, Pacific Cement & Aggregates, Inc., San Francisco; Harry F. Irwin, The Warner Co., Philadelphia; and Harry Mitchell, Spartanburg Concrete Co., Spartanburg, S. C.

Others on the committee are: George H. Nelson, Law-Barrow-Agee Laboratories, Inc., Atlanta; Perry H. Petersen, The Master Builders Co., Cleveland; Emil Schmid, Sika Chemical Corp., Passaic, N. J.; John H. Swanberg, Minnesota Department of Highways, St. Paul; Lewis H. Tuthill, California State Department of Water Resources, Sacramento; I. L. Tyler, Portland Cement Association, Chicago; Byron P. Weintz, Consolidated Rock Products Co., Los Angeles.

Martin Schulz and Mauricio Chedraui

"Tables for Circularly Curved Horizontal Beams with Symmetrical Uniform Loads" on p. 1033 has been prepared by Martin Schulz and Mauricio Chedraui.

Professor Schulz is now with the civil engineering department of the University of El Salvador, San Salvador. He studied civil engineering in Lübeck, Germany, and then worked as structural designer for 2 years. In 1952 he began work as a concrete structural designer for the Department of Architecture of the Ministry of Public Works of El Salvador. Still active with the public works ministry, he is author of "Influence of Edge Conditions in Flat Reinforced Concrete Shell-Dome," which appeared in "Concrete Briefs" of the January 1957 JOURNAL.

Mauricio Chedraui studied civil engineering at the University of El Salvador and has been employed since 1954 as a concrete structural designer for the Department of Architecture, Ministry of Public Works, of El Salvador. Both he and Professor Schulz are members of ACI.

C. F. Zietsman

"Mortar- and Concrete-Making Properties of Natural Sands Related to Their Physical Attributes" by C. F. Zietsman, p. 1041, represents one of Mr. Zietman's long-term interests. He is employed in the chief civil engineer's research section of the South African Railways, Johannesburg, where he has worked since receiving a master's degree in physics from the University of Stellenbosch in 1940. Mr. Zietsman writes of his interest in concrete composition, "I had become obsessed with a desire to wring the truth from the many highly controversial theories, or rather hypotheses, existing in South Africa on this subject. It did not seem to be a job for a physicist, but no one seemed to be making much headway with it, in spite of a dire need for saving and simplification in a country stretched to its geographical limits for a small population and suddenly faced with an enormous industrial expansion . . . On the subject of mix proportioning, ACI 613-44 seemed to meet all our needs, although most of our universities are not impressed. Its only shortcoming seemed to be a vagueness on the matter of aggregate shape . . . "

E. van Walsum

E. van Walsum, whose paper, "An Idea for Long-Span Prestressed Concrete Bridges," appears on p. 1057, is a structural engineer with Foundation of Canada Engineering Corp., Ltd., Montreal, P. Q., Canada. He received his engineering degree from Delft University, Holland. A Rotary Foundation scholarship enabled him to study at McGill University, Montreal, and in 1955 he joined the FENCO staff where he has been mainly engaged in the design of bridges.

An ACI member since 1956, Mr. van Walsum is also a member of the Engineering Institute of Canada and the Royal Institute of Dutch Engineers.

A. F. Al-Alusi

"Diagonal Tension Strength of Reinforced Concrete T-Beams with Varying Shear Span" appearing on p. 1067 was prepared for the JOURNAL by Dr. A. F. Al-Alusi, instructor in civil engineering at the Engineering College, Baghdad, Iraq. In addition to his work in connection with the college, Dr. Al-Alusi is director of the Soil Mechanics Laboratory in which soil tests are carried out for all major grain silos in Iraq. He is also a partner in the consulting firm, Bureau of Engineering Development, in Baghdad.

After graduating in 1946 from the Engineering College in Baghdad, he was engaged as a technical supervisor in the General Directorate of Irrigation in Iraq for 3 years. Later he received the MSE degree from the University of Michigan and his PhD from the University of Texas.

Dr. Al-Alusi has been an ACI member since 1956. He is also a member of the Iraqi Engineers Society.

REGIONAL ORGANIZATION

Continued from p. 8

Henry M. Layne, structural engineer, Los Angeles, heads the committee appointed to organize and operate the Southern California Chapter. Committee members are:

JOHN ALEXANDER
HUGH BARNES
STEPHENSON BARNES
F. THOMAS COLLINS
GEORGE GUIBERT
ROBERT HILLER
SAMUEL HOBBS
ERNEST MAAG
WILLIAM MORAN
CHARLES PANKOW
E. A. PETERSON
J. L. PETERSON
JACK RANDALL
EDWARD RICE
E. P. RIPLEY
LEONARD ROSS
O. C. STRUTHERS
C. D. WAILES, JR.
BYRON WEINTZ
WILLIAM T. WHEELER
EMIL R. WOHL
WILLIAM T. WRIGHT

LOOKING AHEAD

May 20-21, 1957—37th Annual Meeting, Society of American Military Engineers, Washington, D. C.

June 3-7, 1957—American Society of Civil Engineers, National Convention, Statler Hotel, Buffalo, N. Y.

June 6-8, 1957—National Society of Professional Engineers, Annual Meeting, Statler Hilton Hotel, Dallas, Tex.

June 16-21, 1957—60th Annual Meeting, American Society for Testing Materials, Chalfonte-Haddon Hall, Atlantic City, N. J.

June 17-21, 1957—American Society for Engineering Education, Annual Meeting, Cornell University, Ithaca, N. Y.

June 23-29, 1957—International Bureau of Precast Concrete, Second International Congress and Machinery Exposition, Wiesbaden, Germany

June 24-29, 1957—Concrete Reinforcing Steel Institute, Annual Meeting, The Greenbrier, White Sulphur Springs, W. Va.

July 29-August 2, 1957—World Conference on Prestressed Concrete, Fairmont Hotel, San Francisco, Calif.

August 12-24, 1957—International Society of Soil Mechanics and Foundation Engineering, London, England

August 19-30, 1957—(Tentative) Seventh Pan American Highway Congress, Panama City, Panama

September 8-13, 1957—American Chemical Society, National Meeting, New York, N. Y.

September 9-13, 1957—Instrument Society of America, 12th Annual Instrument-Automation Conference and Exhibit, Auditorium, Cleveland, Ohio.

October 29-30, 1957—ACI Regional Meeting, Benjamin Franklin Hotel, Seattle, Wash.

Membership in the American Concrete Institute

To facilitate prospective members in joining the Institute, membership application forms are provided. Present Members may aid by bringing these forms to the attention of those who may profit from membership advantages. The grades of membership are described overleaf.

All who have an interest in concrete are eligible for membership.

Members have at hand in Institute publications the most complete fund of knowledge on concrete. The ACI JOURNAL provides them with the latest information and ACI special publications provide them with the complete picture of specific problems. Through conventions, and regional and area meetings they are afforded the opportunity of meeting those whose experiences provide the new information, and of exchanging ideas with them.

Opportunity for service is present in technical committee activity, in contributions, or only comments, to the ACI JOURNAL, or in reviewing technical publications for material of interest to the membership.

ACI's world-wide membership is growing in extent and participation—traveling a common road toward better, more economical and durable concrete structures. ACI provides a common ground in the search for and use of new "working tools" in concrete design, manufacture, and erection—and its interpretation.

(cut here)

Board of Direction, American Concrete Institute
P. O. Box 4754, Redford Station
Detroit 19, Michigan

Date_____

Individual Members (U. S. and Possessions, Canada, Mexico, Central America, and West Indies)	$15.00
Individual Members (All other foreign countries)	12.00
Corporation Members	50.00
Contributing Members	100.00
Junior Members—nonvoting (under 28)	7.50
Student Members—nonvoting (under 28)	5.00

(Subject to stipulations of Bylaws—Article I on reverse side. Bylaws on request.)

Of the annual dues, $12.00 is for the JOURNAL of the American Concrete Institute (except that dues for Junior and Student Members apply in full for the JOURNAL).

The undersigned hereby applies for _____ **membership**
(Individual, Corporation, Contributing, Junior, Student)

in the American Concrete Institute. Proposed by _____

For Corporation Membership, ACI representative will be _____

_____ _____
(Date of graduation if Student) (Name, if Corporation)

Signature _____

For our records, please complete both sides of application.

EXCERPTS FROM BYLAWS: ARTICLE I—MEMBERS

Section 1. This Institute shall consist of Members, Corporation Members, Contributing Members, Junior Members, Student Members, and Honorary Members interested in furthering the Institute's objects as set forth in its Charter.

Sec. 2. A Member shall be an individual.

A Corporation Member shall be a firm, corporation, society, agency of government or other organization. A Corporation Member shall name one individual as its representative who will enjoy all membership rights and privileges.

A Contributing Member shall be an individual, firm, corporation, society, agency of government, or other organization wishing to give larger support to Institute activities through the payment of larger dues. Contributing Members, other than individuals, shall name representatives as do Corporation Members.

A Junior Member shall be a person less than 28 years old.

A Student Member shall be less than 28 years old and a student in residence at a recognized technical or engineering school.

An Honorary Member shall be a person of eminence in the field of the Institute's interest, or one who has performed extraordinarily meritorious service to the Institute.

Sec. 3. All classes of Members except Honorary Members and Student Members, shall be proposed by at least one Member of the Institute and elected by a two-thirds vote of the Board of Direction. An Honorary Member shall be elected by unanimous vote of the Board of Direction. A Student Member shall be proposed by a member of his school's faculty, who need not be a Member of the Institute, and elected by a two-thirds vote of the Board of Direction.

Sec. 4. All Members shall have all rights and privileges of membership as determined by the Board of Direction except that a Junior or Student Member shall not vote nor hold office. The status of a Student Member shall change automatically to that of Junior Member on the first anniversary of his membership succeeding the date on which he ceases to be a student in residence. The status of a Junior Member shall be changed to that of Member on the first anniversary of his membership after he becomes 28 years of age.

Sec. 5. Applications for and resignations from Membership and requests for change of representatives of Corporation or Contributing Memberships shall be presented in writing to the Secretary-Treasurer. Resignations may be accepted only from Members whose dues are not more than 60 days in arrears, except by special action of the Board of Direction.

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Name of Firm or Organization _____

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Honor Roll

We have a tie this month for first place—Luis Perez Cid, Louis A. Gottheil, James A. McCarthy, and G. B. Southworth all with 4 credits.

Are YOU member conscious?

If you know someone who is actively interested in the concrete field why not introduce them to ACI.

Luis Perez Cid	4
Louis A. Gottheil	4
James A. McCarthy	4
G. B. Southworth	4
S. E. Acker	3
Jaime de las Casas	3
Phil M. Ferguson	3
Franklin B. Johnson	3
Henry L. Kennedy	3
R. F. Blanks	2
James Chinn	2
W. S. Cottingham	2
C. A. Engman	2
E. I. Fiesenheiser	2
Martin J. Gutzwiller	2
N. L. Hinkman	2
M. W. Huggins	2
Leo Liberthson	2
Robert H. Lochow	2
I. Martin	2
Richard A. Parmelee	2
H. C. Pfannkuche	2
Walter H. Price	2
Abdur Rahman S. Rasul	2
John T. Young	2

New Members

The Board of Direction approved 110 Individual applications, 6 Corporations, 16 Juniors, and 17 Students, making a total of 149 new members. Considering losses due to deaths, resignations and nonpayment of dues, the total membership on April 1, 1957 was 8739.

Individual

Abola, Antonio A., San Juan, Rizal, Philippines (CE)

Adalist, Herman, Seattle, Wash. (Partner, North American Inspection & Testing)

Antonmattei, Jose E., Caguas, P. R. (CE, Jose V. Santoz)

Baig, Mirza Akbar Ali, Chicago, Ill. (Struct. Designer, Skidmore, Owings & Merrill)

Baird, Charles O., Jr., Boston, Mass. (Head of Civil Engrg. Dept., Northeastern Univ.)

Bayne, K. N., Winnipeg, Man., Canada (Engr., Dept. of Sales, Canada Cement Co., Ltd.)

Beebe, Fred, New York, N. Y. (Supv. of Constr. in field, Thompson-Lichtner Co.)

Bender, M. E., Camp Hill, Pa. (Chf. Bridge Engr., Jos. K. Knoerle & Assoc., Inc.)

Blackwell, Albert L., Trenton, N. J. (Dist. Engr., Dir., Education, Promotion, Research, Design, Const., Concrete, PCA)

Borge, Donald G., Fargo, N. D. (Constr. Engr., USBR)

Bruggeling, Ir A. S. G., Alphen a. d., Rijn, Holland (Dir., Prestressed Concrete Factory, N. V. Nederlandse Spanbeton Mij)

Bryson, James O., Washington, D. C. (Struct. Engr., NBS)

Bunting, Frederick B., Vancouver, B. C., Canada (Group Supv., Foundation of Canada Engrg. Corp., Ltd.)

Burg, George R. U., St. Clair Shores, Mich. (Sales Engr., Master Builders Co.)

Cantor, Irwin G., Bayside, Queens, N. Y. (Sr. Engr., Abrahams & Hertzberg Engrg.)

Carlson, John H., Philadelphia, Pa. (Struct. Designer, United Engineers & Constrs.)

Chandler, J. M., Tulsa, Okla. (Vice-Pres., Chandler Materials Co.)

Chapin, F. H., Detroit, Mich. (Design Engr., Structures & Expressways, Wayne County Road Comm.)

Correia de Araujo, Francisco, Porto, Portugal (Prof. of Struct. Engrg. & Bridge Engrg., Univ. of Portugal)

Cufaude, Ralph E., Normal, Ill. (Arch.)

De Fraites, Arthur A., Jr., New Orleans, La. (Design Work, Walter E. Blessey)

Donovan, Robert L., Allentown, Pa. (Bridge Designer, A. R. West, Cons. Engr.)

Erickson, Roger L., Austin, Tex. (Cons. Engr., Arch.)

Falconer, Bruce H., Wellington, New Zealand (Struct. Engr., Ministry of Works)

Fischer, H. C., Manville, N. J. (Research Engr., Johns-Manville Corp.)

Finfrock, Robert D., Orlando, Fla. (Pres., American Mast Co.)

Fleming, David E., Lakewood, Colo. (Civil & Struct. Designer in Struct. & Arch. Branch, USBR)

Ford, Paul J., Columbus, Ohio (Struct. Engr. & Jr. Partner, Tibbals, Crumley & Musson, Archs.)

Frederick, Ernst John, Bristol, R. I. (Struct. Engr., U. S. Army, Corps of Engrs.)

Garman, Richard F., Cleveland, Ohio (Sales Mgr., Goff-Kirby Co.)

Gianakis, Christopher D., Roselle, N. J. (Asst. Constr. Supt., Gotelli Contracting Co.)

Goldenberg, Jos. W., East St. Louis, Ill. (Cons. Engr.)

Goodale, Robert G., Whittier, Calif. (Detail Draftsman & Checker, Wahleo Engrs., Inc.)

Continued on p. 36

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Continued from p. 35

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HAMADA, MINORU, Tokyo, Japan (Prof., Faculty of Engrg., Univ. of Tokyo)

HARRIS, GILLIAM S., Decatur, Ga. (Struct. Engr., Hedrick, Hart & Kyrkendall)

HENRY, WILLIAM ROBERT, JR., Jackson, Miss. (Arch., Jay T. Liddle, Jr., Arch.)

HERRERO, FERNANDO F., San Francisco, Calif. (Sr. Engr. in Charge of Struct. Design, Engrg. Dept., California Packing Corp.)

HUGHES, CHARLES H., Austin, Texas (Div. Engr. for Southwest Div., The Master Builders Co.)

ISNARD, JACK C., Milwaukee, Wis. (Chf. Struct. Engr., Grassold-Johnson & Assoc.)

JABLONSKY, JERRY, Toronto, Ont., Canada (Chf. Engr., Farkas & Barron (Canada) Ltd.)

JOHNS, MICHAEL K., Washington, D. C. (Jr. Partner, Beall & LeMay Co., Struct. Engrs.)

KACZOR, EDWARD, New York, N. Y. (Chem. Sika Chemical Co.)

KAIN, CHARLES F., Lansdowne, Pa. (CE, spec. in Struct. Design, Kain & Hooven)

KELLER, PETER G., Ottawa, Ont., Canada (Proj. Engr. & Sr. Spec. Writer, Dept. of National Defence, Gov't of Canada, Directorate of Constr. Engrg., Air Force HQ.)

KENNEDY, G. DONALD, Chicago, Ill. (Pres., PCA)

KETCHESON, LESLIE R., Cheyenne, Wyo. (Bridge Designer, Wyo. Hwy. Dept.)

KIRCHGESSNER, C. J., Grand Rapids, Mich. (Sales Mgr. & Engr. Cons., Grand Rapids Gravel Co.)

KIRDAR, NEZIR A., (N. Kirdar Engrg. Co., Baghdad, Iraq)

KLAUCK, FREDERICK R., Landenberg, Pa. (Dev. Engr., E. I. DuPont De Nemours & Co., Engrg. Dept.)

KOSCHEWNIKOW SIRIN, ALEXEY, Caracas, Venezuela (CE, Hydraulics Dept., Ministry of Public Works)

KOTHE, STANLEY W., Ellwood City, Pa. (Struct. Engr., W. G. Eckles Co.)

KRICK, JAMES H., Ann Arbor, Mich. (Proj. Engr., Cummins & Barnard, Inc.)

LA FOUNTAIN, ALFRED A., Hackensack, N. J. (Bldg. Contr.)

LANE, BRUCE W., Baton Rouge, La. (Engr. & Sec.-Treas., Big River Industries)

LEAS, ROBERT L., Ft. Wayne, Ind. (Struct. Engr., A. M. Strauss, Inc.)

LEE, ROBERT N., Abilene, Tex. (Struct. Engr., F. C. Olds Co.)

LE LIEVRE, BRIAN, Toronto, Ont., Canada (Struct. Design Engr., R. M. May & Co., Ltd.)

LEW, N. J., St. Louis, Mo. (Dist. Engr., American Inst. of Steel Constr., Inc.)

LIEBREICH, H., El Paso, Tex. (Dist. Mgr., Southwestern Portland Cement Co.)

LONGARDNER, ROBERT L., Indianapolis, Ind. (Robert L. Longardner & Assocs.)

LUDWIG, RODNEY W., Austin, Tex. (Struct.Engr., Page-Sutherland-Page, Archs. & Engrgs.)

LYMAN, ROBERT J., El Paso, Tex. (CE, Spec. Projects, The Atlas Bldg. Products Co.)

MARESCA, ANTHONY, Los Angeles, Calif. (CE, Dept. of County Eng. & Surveyor)

MASCIOMI, JOHN G., New York, N. Y. (Struct. Designer, Severud-Elstad-Krueger)

MAURICE, M. BUISSON, Paris, France (Directeur du Service de controle des Constructions Immobilieres au Bureau Veritas)

MCDEVITT, JEROME A., Torrance, Calif. (Chf. Design Engr., A & E, Harvey Aluminum)

MINDER, E. G., JR., Minneapolis, Minn. (CE, Consultant)

MONK, C. B., JR., Geneva, Ill. (Mgr. Engrg. & Arch. Research, Structural Clay Products Research Foundation)

NERZ, C. WARREN, Yonkers, N. Y. (CE, Savin Const. Corp.)

ORJUELA C., FRANCISCO JOSE, Bogota, Colombia (CE, Calculista de estructuras, Spinel & Cia, Ltda.)

OSWEILER, PAUL L., Dayton, Ohio (Chf. Engr., Price Brothers Co.)

PALMER, JAMES D., Waukesha, Wis. (Pres., Waukesha Redi-Mix, Inc.)

PARSONS, J. L., Salt Lake City, Utah (The Master Builders Co.)

PATEL, N. T., Madras, India (Engr. & Sr. Partner, N. T. Patel & Co.)

PELLIZZI, JOSEPH T., New York, N. Y. (Struct. Designer, Lockwood Greene Engrs.)

PEREIRA, JAMES W., Alhambra, Calif. (Struct. Designer, C. F. Braun & Co.)

POPE, ELMER GEORGE, Deerfield, Ill. (Constr. Supt., E. A. Meyer Constr. Co.)

PRICE, WESLEY C., New York, N. Y. (Exec. Asst., U.S. Army Engr. Dist., Middle East, Corps of Engrs.)

PUTSEP, LEMBIT, Montreal, Que., Canada (Design Engr., R/C Structures, The Aluminum Co. of Canada)

QUASDORF, R. T., Jackson, Miss. (Sales Engr., Marquette Cement Mfg. Co.)

RABE, GEORGE, New York, N. Y. (Struct. Designer, Corbett, Tinghir & Co.)

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mounted models can be carried. This self-contained portable boiler carries its own fuel supply—132 gal. of No. 2 oil in two fender tanks. Engine is rated 22 hp continuous duty at 1800 rpm. Hand throttle controls rpm at speeds below 1800 rpm.—Cleaver-Brooks Co., 326 E. Keefe Ave., Milwaukee 12, Wis.

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Plaster booklet

An 8-page booklet of data on vermiculite plaster and acoustical systems has been announced. Special attention is given to portland cement plaster and machine methods of application.—Zonolite Co., 135 S. LaSalle St., Chicago 3, Ill.

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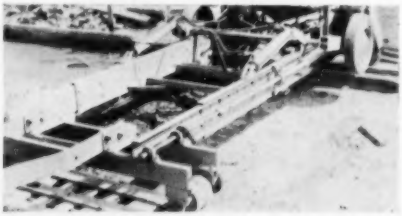

facturer reports. The curb builders are offered in widths of 10 to 15, 12 to 18½, 20 to 25, and 18 to 25 ft. Other widths are available on special order. Powered by a 12-hp, air-cooled engine, the machine is hydraulically driven. Travel speeds vary from 0 to 40 ft per min, both forward and reverse.—General Road Machines, Inc., Niles, Ohio.

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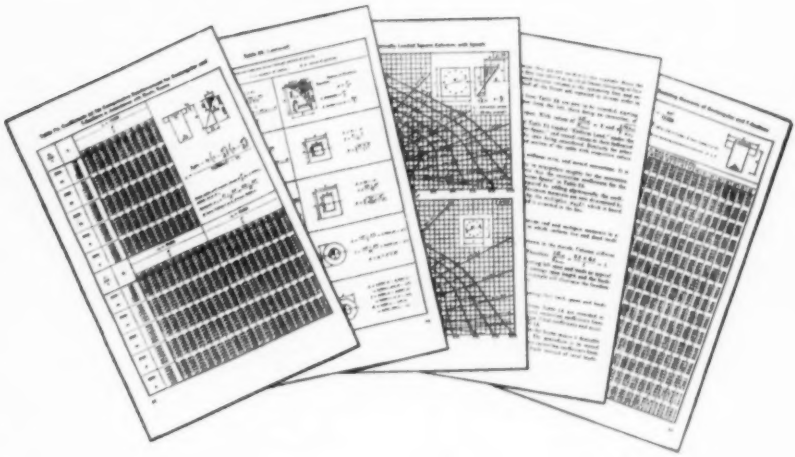

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